

2002 National Teacher Training Institute

Grades 5-9

Flower Power

Master Teacher

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Time Allotment

90 minutes

Overview

This lesson will teach students the parts of flowers and how they reproduce. Students will dissect flowers and observe the reproductive organs. Students will observe the anthers and ovaries of Tiger Lilies under a microscope. They will learn how insects and other organisms are involved in the reproduction process.

Subject Matter

Science (Botany)

Learning Objectives

Students will be able to:

- ✎ construct a model of a cross-section of a flower
- ✎ identify the male and female reproductive systems of flowers
- ✎ dissect and observe the reproductive organs of flowers
- ✎ describe how pollination occurs in flowers

South Carolina Standards

(These Standards can be found online at http://www.sde.state.sc.us/offices/cso/Standards_Page.htm.)

- ✎ Observe, draw, and label the parts of a flower and examine their functions in sexual reproduction.
- ✎ Describe the importance of wind, water, or insects to the pollination process and the adaptations of flowering plants to ensure pollination.

- ✎ Trace the path of the sperm cells to the egg cell in the ovary of a flower to produce a seed.

Media Components

Videos

The Biology of . . ., Lesson 5: “Plants” shows the reproductive organs of a Tiger Lily.

How Plants Grow, Lesson 4: “The Dandelion” demonstrates the pollination process.

Nature Notes with Rudy Mancke, Lesson 5: “Poisonous Plants” is a one-minute video that describes dangerous plants.

Web Sites

AskJeeves (<http://www.ask.com/>.) At this Web site, students will be led to a page that illustrates and defines the parts of a flower.

AskJeeves (<http://www.ask.com/>.) Again using the *AskJeeves* site, have students type in “Where can I learn about flower pollination?” Click that question when it comes up on the next page. This will take you to a “Case #4: Pollination.”

Materials

2 stereo microscopes
1 Tiger Lily per group of students
1 magnifying glass per group of students
1 pattern for flower parts (Activity Sheet 1) per student
scissors
computers with Internet connections

(Note to Teacher: Check with your local florists. Many are willing to provide the Tiger Lily plants at no cost.)

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Prep for Teachers

Prior to this lesson, bookmark the Web sites used in this lesson.



Set up the microscopes with an anther under one and an ovary (cut open so that you can see the ovules) under the other.



Each group of desks needs 1 flower, 1 pair of scissors per student, 1 flower part pattern per student, and 1 magnifying glass.



When using media, provide students with a **Focus for Media Interaction**, a specific task to complete and/or information to identify during or after viewing of video segments, Web sites, or other multimedia elements.

Introductory Activity

Ask students if they have ever wondered how plants reproduce. Then pass out the “Pattern for Flower Parts” sheet and have them try to correctly put together their flowers.

Learning Activities

Step 1: Continuing with what the students did in the **Introductory Activity**, say: “After you have put your patterns together to the best of your ability go to the Web site and check your work.”

(**Note to Teacher:** This is their **Focus for Media Interaction**.)

At the *AskJeeves* site (<http://www.ask.com/>), have students type in the words “parts of flowers” and then click on “Ask where can I learn about flower parts.”

Step 2: Students need to write down the highlighted words and click on them for a definition. (**Note to Teacher:** I have my students write the definitions in their notebooks.)

Culminating Activity

Step 1: Dissecting the flowers. Give each group a flower. Have them locate the stem. Say, “Look inside of the stem, do you see the tube-like vessels? Those are for transporting water and food. They are called *xylem* and *phloem*.”

Step 2: Now have the students locate the sepals. Say, “The sepals help protect the developing buds.”

Step 3: Locate the petals. Say, “The petals protect the reproductive organs in a flower.” The students may now carefully remove the petals.

Step 4: Provide a **Focus for Media Interaction** by telling the students: “Use your flowers to see the parts described in the video.” Then FAST FORWARD the video *The Biology of ...*, Lesson 5: “Plants” until you see a Tiger Lily and you hear: “The Tiger Lily shows the typical parts involved in angiosperm reproduction.” PLAY the tape until you hear: “Their sexy ways have made flowers the most adaptable of all.”

Step 5: Have students pull off the six stamen and look for pollen grains on the anthers with their magnifying glasses.

Step 6: Tell students to observe the *pistil*, locating the *stigma* (the very tip of the pistil), the *style* (the long tube), and the *ovary* (the fat part at the bottom).

Step 7: Say, “Use your fingernail to cut the ovary in half. What do you see? [*ovules*] These are the female eggs.”

Step 8: Allow the students to go to the microscopes and observe the anther and ovary.

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Step 9: Provide a **Focus for Media Interaction** by saying, “Now that we know what the reproductive parts are, let’s see how they work.” Go to the second Web site (<http://tjunior.thinkquest.org/3715/pollin5.html>) and tell students to read the information and add the highlighted words to their notebooks.

Step 10: Provide a **Focus for Media Interaction** by saying, “Remember the pollen grains on the anthers? Well, let’s see just how that pollen is used to reproduce.”

FAST FORWARD the tape *How Plants Grow*, Lesson 4: “The Dandelion” until you see the dandelion open up and hear: “This is what you see in fields everywhere in the spring.” PLAY the tape until you hear: “. . . and helps that the flower makes seeds.”

Step 11: Provide a **Focus for Media Interaction** by saying, “Even though flowers are very beautiful, you should be careful because some of them are poisonous. You should know all about plants before picking them.” PLAY the tape *Nature Notes with Rudy Mancke*, Lesson 5: “Poisonous Plants.” This is a one-minute lesson on poisonous plants.



(**Note to Teacher:** Students love to share their experiences with poison ivy, poison oak . . . if time permits allow them to share.)

Cross-Curricular Extensions

Art/Writing: Have the students design their own flowers. They should name them, describe them, and draw them. Have competitions to see who has the most creative flower.

Science: Plant a flower garden in the school yard. Keep a journal tracking the growth rates of different flowers. Enter your findings in the school Science Fair.

Community Connections

-  Have the students take flowers to the elderly in a local nursing home.
-  Plant a garden in a local community park.

Student Materials

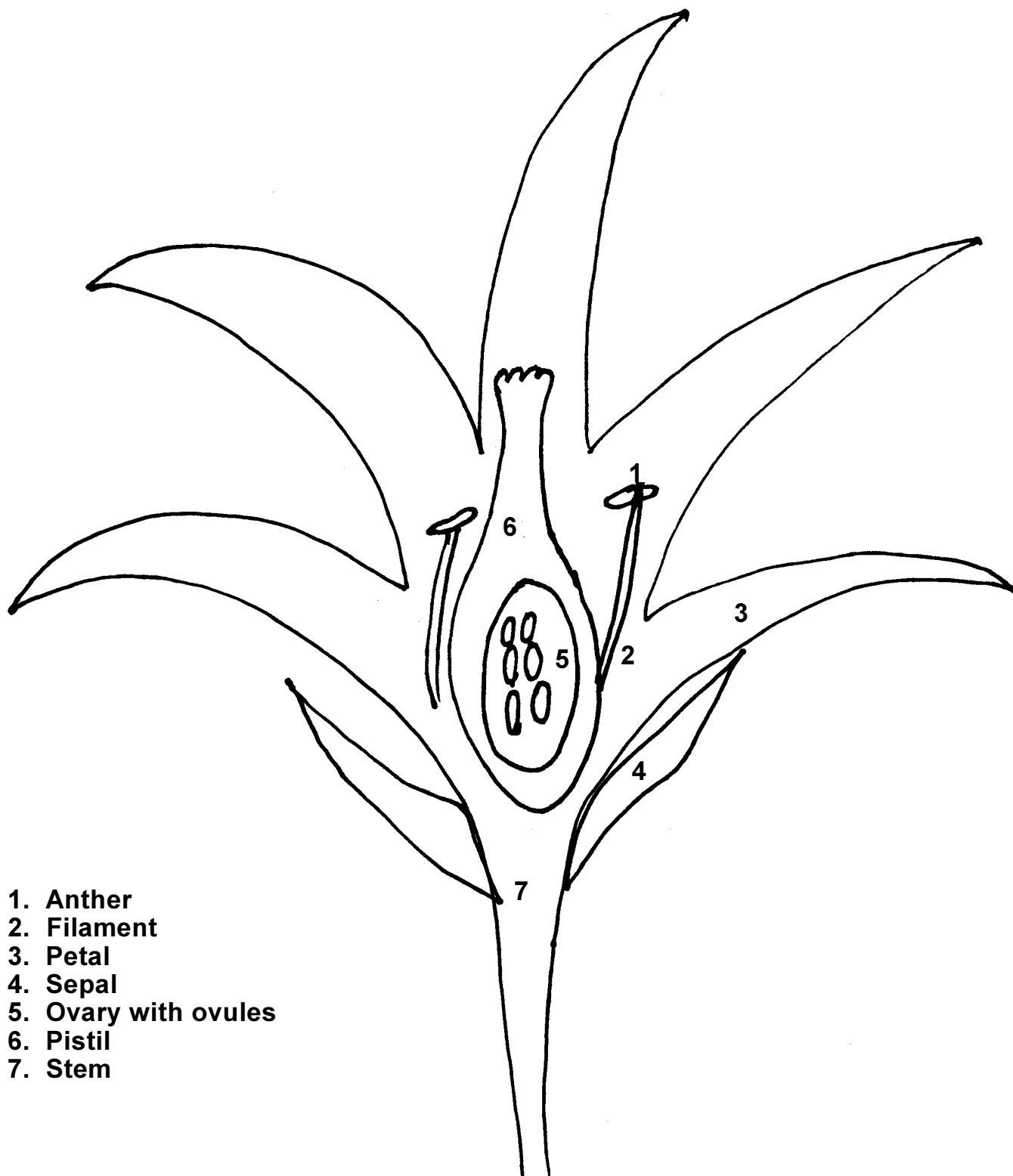
- 1 flower per group
- 1 pair of scissors per student
- 1 flower part pattern per student
- 1 magnifying glass per group
- student notebooks.

Flower Part Pattern

This will make a cross-section of a lily when put together correctly.



Flower Part Pattern Answer Key



1. Anther
2. Filament
3. Petal
4. Sepal
5. Ovary with ovules
6. Pistil
7. Stem